

=====

Sequence Listing was accepted.

If you need help call the Patent Electronic Business Center at (866)  
217-9197 (toll free).

Reviewer: markspencer

Timestamp: [year=2009; month=12; day=11; hr=14; min=8; sec=7; ms=337; ]

=====

Application No: 10524939 Version No: 3.0

**Input Set:****Output Set:**

**Started:** 2009-11-25 16:19:47.327  
**Finished:** 2009-11-25 16:19:51.489  
**Elapsed:** 0 hr(s) 0 min(s) 4 sec(s) 162 ms  
**Total Warnings:** 22  
**Total Errors:** 0  
**No. of SeqIDs Defined:** 27  
**Actual SeqID Count:** 27

Error code	Error Description
W 402	Undefined organism found in <213> in SEQ ID (4)
W 402	Undefined organism found in <213> in SEQ ID (5)
W 402	Undefined organism found in <213> in SEQ ID (6)
W 402	Undefined organism found in <213> in SEQ ID (7)
W 402	Undefined organism found in <213> in SEQ ID (8)
W 402	Undefined organism found in <213> in SEQ ID (9)
W 402	Undefined organism found in <213> in SEQ ID (10)
W 402	Undefined organism found in <213> in SEQ ID (12)
W 402	Undefined organism found in <213> in SEQ ID (13)
W 402	Undefined organism found in <213> in SEQ ID (14)
W 402	Undefined organism found in <213> in SEQ ID (15)
W 402	Undefined organism found in <213> in SEQ ID (16)
W 402	Undefined organism found in <213> in SEQ ID (17)
W 402	Undefined organism found in <213> in SEQ ID (18)
W 402	Undefined organism found in <213> in SEQ ID (19)
W 402	Undefined organism found in <213> in SEQ ID (20)
W 213	Artificial or Unknown found in <213> in SEQ ID (22)
W 213	Artificial or Unknown found in <213> in SEQ ID (23)
W 213	Artificial or Unknown found in <213> in SEQ ID (24)
W 213	Artificial or Unknown found in <213> in SEQ ID (25)

**Input Set:**

**Output Set:**

**Started:** 2009-11-25 16:19:47.327  
**Finished:** 2009-11-25 16:19:51.489  
**Elapsed:** 0 hr(s) 0 min(s) 4 sec(s) 162 ms  
**Total Warnings:** 22  
**Total Errors:** 0  
**No. of SeqIDs Defined:** 27  
**Actual SeqID Count:** 27

Error code	Error Description
W 402	Undefined organism found in <213> in SEQ ID (26)
W 402	Undefined organism found in <213> in SEQ ID (27)

# SEQUENCE LISTING

<110> BARRETT, ALAN  
BEASLEY, DAVID  
HOLBROOK, MICHAEL

<120> COMPOSITIONS AND METHODS RELATED TO FLAVIVIRUS  
ENVELOPE PROTEIN DOMAIN III ANTIGENS

<130> UTSG:260US

<140> 10524939

<141> 2009-11-25

<150> PCT/US03/25681

<151> 2003-08-18

<150> 60/445,581

<151> 2003-02-06

<150> 60/403,893

<151> 2002-08-16

<160> 27

<170> PatentIn Ver. 2.1

<210> 1

<211> 10962

<212> DNA

<213> West Nile virus

<220>

<221> CDS

<222> (97)..(10389)

<400> 1

agtagttcgc ctgtgtgagc tgacaaactt agtagtggtt gtgaggatta acaacaatta 60

acacagtgcg agctgtttct tggcacgaag atctcg atg tct aag aaa cca gga 114  
Met Ser Lys Lys Pro Gly  
1 5

ggg ccc ggt aaa aac cgg gct gtc aat atg cta aaa cgc ggt atg ccc 162  
Gly Pro Gly Lys Asn Arg Ala Val Asn Met Leu Lys Arg Gly Met Pro  
10 15 20

cgc gga ttg tcc ttg ata gga cta aag agg gct atg ctg agt ctg att 210  
Arg Gly Leu Ser Leu Ile Gly Leu Lys Arg Ala Met Leu Ser Leu Ile  
25 30 35

gac ggg aag ggc cca ata cgt ttc gtg ttg gct ctt ttg gcg ttt ttc 258  
Asp Gly Lys Gly Pro Ile Arg Phe Val Leu Ala Leu Leu Ala Phe Phe  
40 45 50

aga ttc act gca atc gct ccg act cgt gcg gtg ctg gac aga tgg aga 306

Arg 55	Phe	Thr	Ala	Ile	Ala	Pro	Thr	Arg	Ala	Val	Leu	Asp	Arg	Trp	Arg		
60					65					70							
ggc	gtc	aac	aaa	caa	aca	gca	atg	aag	cat	ctc	ttg	agt	ttc	aag	aaa	354	
Gly	Val	Asn	Lys	Gln	Thr	Ala	Met	Lys	His	Leu	Leu	Ser	Phe	Lys	Lys		
75					80					85							
gaa	cta	gga	act	ctg	acc	agt	gcc	atc	aac	cgc	cgg	agc	aca	aaa	caa	402	
Glu	Leu	Gly	Thr	Leu	Thr	Ser	Ala	Ile	Asn	Arg	Arg	Ser	Thr	Lys	Gln		
90					95					100							
aag	aaa	aga	gga	ggc	aca	gcg	ggc	ttt	act	atc	ttg	ctt	ggg	ctg	atc	450	
Lys	Lys	Arg	Gly	Gly	Thr	Ala	Gly	Phe	Thr	Ile	Leu	Leu	Gly	Leu	Ile		
105					110					115							
gcc	tgt	gct	gga	gct	gtg	acc	ctc	tcg	aac	ttc	cag	ggc	aaa	gtg	atg	498	
Ala	Cys	Ala	Gly	Ala	Val	Thr	Leu	Ser	Asn	Phe	Gln	Gly	Lys	Val	Met		
120					125					130							
atg	aca	gtc	aat	gca	acc	gat	gtc	act	gac	gtg	att	acc	att	cca	aca	546	
Met	Thr	Val	Asn	Ala	Thr	Asp	Val	Thr	Asp	Val	Ile	Thr	Ile	Pro	Thr		
135					140					145					150		
gct	gct	ggg	aaa	aac	ctg	tgc	atc	gta	agg	gct	atg	gac	gta	gga	tac	594	
Ala	Ala	Gly	Lys	Asn	Leu	Cys	Ile	Val	Arg	Ala	Met	Asp	Val	Gly	Tyr		
155					160					165							
ctt	tgt	gag	gat	act	atc	act	tat	gaa	tgt	ccg	gtc	cta	gct	gct	gga	642	
Leu	Cys	Glu	Asp	Thr	Ile	Thr	Tyr	Glu	Cys	Pro	Val	Leu	Ala	Ala	Gly		
170					175					180							
aat	gac	cct	gaa	gac	att	gac	tgc	tgg	tgc	acg	aaa	tca	tct	gtt	tac	690	
Asn	Asp	Pro	Glu	Asp	Ile	Asp	Cys	Trp	Cys	Thr	Lys	Ser	Ser	Val	Tyr		
185					190					195							
gtg	cgc	tat	gga	aga	tgc	aca	aaa	act	cgc	cat	tcc	cgt	cga	agc	aga	738	
Val	Arg	Tyr	Gly	Arg	Cys	Thr	Lys	Thr	Arg	His	Ser	Arg	Arg	Ser	Arg		
200					205					210							
agg	tct	ctg	aca	gtc	cag	aca	cat	gga	gaa	agt	aca	ctg	gcc	aac	aag	786	
Arg	Ser	Leu	Thr	Val	Gln	Thr	His	Gly	Glu	Ser	Thr	Leu	Ala	Asn	Lys		
215					220					225					230		
aaa	gga	gct	tgg	ttg	gac	agc	aca	aaa	gcc	acg	aga	tat	ctg	gtg	aag	834	
Lys	Gly	Ala	Trp	Leu	Asp	Ser	Thr	Lys	Ala	Thr	Arg	Tyr	Leu	Val	Lys		
235					240					245							
aca	gaa	tca	tgg	ata	ctg	aga	aac	ccg	ggc	tac	gcc	ctc	gtt	gca	gct	882	
Thr	Glu	Ser	Trp	Ile	Leu	Arg	Asn	Pro	Gly	Tyr	Ala	Leu	Val	Ala	Ala		
250					255					260							
gtc	att	gga	tgg	atg	cta	gga	agc	aac	aca	atg	caa	cgc	gtc	gtg	ttt	930	
Val	Ile	Gly	Trp	Met	Leu	Gly	Ser	Asn	Thr	Met	Gln	Arg	Val	Val	Phe		
265					270					275							
gcc	att	cta	ttg	ctc	ctg	gtg	gca	cca	gca	tac	agc	ttc	aac	tgt	tta	978	
Ala	Ile	Leu	Leu	Leu	Leu	Val	Ala	Pro	Ala	Tyr	Ser	Phe	Asn	Cys	Leu		

280	285	290	
gga atg agt aac aga gac ttc ctg gag gga gtg tct gga gct aca tgg			1026
Gly Met Ser Asn Arg Asp Phe Leu Glu Gly Val Ser Gly Ala Thr Trp			
295	300	305	310
ggt gat ctg gta ctg gaa ggc gat agt tgt gtg acc ata atg tca aaa			1074
Val Asp Leu Val Leu Glu Gly Asp Ser Cys Val Thr Ile Met Ser Lys			
	315	320	325
gac aag cca acc att gat gtc aaa atg atg aac atg gaa gca gcc aac			1122
Asp Lys Pro Thr Ile Asp Val Lys Met Met Asn Met Glu Ala Ala Asn			
	330	335	340
ctc gca gat gtg cgc agt tac tgt tac cta gct tcg gtc agt gac ttg			1170
Leu Ala Asp Val Arg Ser Tyr Cys Tyr Leu Ala Ser Val Ser Asp Leu			
	345	350	355
tca aca aga gct gcg tgt cca acc atg ggt gaa gcc cac aac gag aaa			1218
Ser Thr Arg Ala Ala Cys Pro Thr Met Gly Glu Ala His Asn Glu Lys			
	360	365	370
aga gct gac ccc gcc ttc gtt tgc aag caa ggc gtt gtg gac aga gga			1266
Arg Ala Asp Pro Ala Phe Val Cys Lys Gln Gly Val Val Asp Arg Gly			
375	380	385	390
tgg gga aat ggc tgc gga ctg ttt gga aag ggg agc att gac aca tgt			1314
Trp Gly Asn Gly Cys Gly Leu Phe Gly Lys Gly Ser Ile Asp Thr Cys			
	395	400	405
gcg aag ttt gcc tgt aca acc aaa gca act gga tgg atc atc cag aag			1362
Ala Lys Phe Ala Cys Thr Thr Lys Ala Thr Gly Trp Ile Ile Gln Lys			
	410	415	420
gaa aac atc aag tat gag gtt gcc ata ttt gtg cat ggc ccg acg acc			1410
Glu Asn Ile Lys Tyr Glu Val Ala Ile Phe Val His Gly Pro Thr Thr			
	425	430	435
ggt gaa tct cat ggc aag ata ggg gcc acc cag gct gga aga ttc agt			1458
Val Glu Ser His Gly Lys Ile Gly Ala Thr Gln Ala Gly Arg Phe Ser			
	440	445	450
ata act cca tcg gcg cca tct tac acg cta aag ttg ggt gag tat ggt			1506
Ile Thr Pro Ser Ala Pro Ser Tyr Thr Leu Lys Leu Gly Glu Tyr Gly			
455	460	465	470
gag gtt acg gtt gat tgt gag cca cgg tca gga ata gac acc agc gcc			1554
Glu Val Thr Val Asp Cys Glu Pro Arg Ser Gly Ile Asp Thr Ser Ala			
	475	480	485
tat tac gtt atg tca gtt ggt gag aag tcc ttc ctg gtt cac cga gaa			1602
Tyr Tyr Val Met Ser Val Gly Glu Lys Ser Phe Leu Val His Arg Glu			
	490	495	500
tgg ttt atg gat ctg aac ctg cca tgg agc agt gct gga agc acc acg			1650
Trp Phe Met Asp Leu Asn Leu Pro Trp Ser Ser Ala Gly Ser Thr Thr			
	505	510	515

tgg agg aac cgg gaa aca ctg atg gag ttt gaa gaa cct cat gcc acc	1698
Trp Arg Asn Arg Glu Thr Leu Met Glu Phe Glu Glu Pro His Ala Thr	
520 525 530	
aaa caa tct gtt gtg gct cta ggg tcg cag gaa ggt gcg ttg cac caa	1746
Lys Gln Ser Val Val Ala Leu Gly Ser Gln Glu Gly Ala Leu His Gln	
535 540 545 550	
gct ctg gcc gga gcg att cct gtt gag ttc tca agc aac act gtg aag	1794
Ala Leu Ala Gly Ala Ile Pro Val Glu Phe Ser Ser Asn Thr Val Lys	
555 560 565	
ttg aca tca gga cat ctg aag tgt cgg gtg aag atg gag aag ttg cag	1842
Leu Thr Ser Gly His Leu Lys Cys Arg Val Lys Met Glu Lys Leu Gln	
570 575 580	
ctg aag gga aca aca tat gga gta tgt tca aaa gcg ttc aaa ttc gct	1890
Leu Lys Gly Thr Thr Tyr Gly Val Cys Ser Lys Ala Phe Lys Phe Ala	
585 590 595	
agg act ccc gct gac act ggc cac gga acg gtg gtg ttg gaa ctg caa	1938
Arg Thr Pro Ala Asp Thr Gly His Gly Thr Val Val Leu Glu Leu Gln	
600 605 610	
tat acc gga aca gac ggt ccc tgc aaa gtg ccc att tct tcc gta gct	1986
Tyr Thr Gly Thr Asp Gly Pro Cys Lys Val Pro Ile Ser Ser Val Ala	
615 620 625 630	
tcc ctg aat gac ctc aca cct gtt gga aga ctg gtg acc gtg aat cca	2034
Ser Leu Asn Asp Leu Thr Pro Val Gly Arg Leu Val Thr Val Asn Pro	
635 640 645	
ttt gtg tct gtg gcc aca gcc aac tcg aag gtt ttg att gaa ctc gaa	2082
Phe Val Ser Val Ala Thr Ala Asn Ser Lys Val Leu Ile Glu Leu Glu	
650 655 660	
ccc ccg ttt ggt gac tct tac atc gtg gtg gga aga gga gaa cag cag	2130
Pro Pro Phe Gly Asp Ser Tyr Ile Val Val Gly Arg Gly Glu Gln Gln	
665 670 675	
ata aac cat cac tgg cac aaa tct ggg agc agc att gga aag gcc ttt	2178
Ile Asn His His Trp His Lys Ser Gly Ser Ser Ile Gly Lys Ala Phe	
680 685 690	
acc acc aca ctc aga gga gct caa cga ctc gca gct ctt gga gat act	2226
Thr Thr Thr Leu Arg Gly Ala Gln Arg Leu Ala Ala Leu Gly Asp Thr	
695 700 705 710	
gct tgg gat ttt gga tca gtt gga ggg gtt ttc acc tca gtg ggg aaa	2274
Ala Trp Asp Phe Gly Ser Val Gly Gly Val Phe Thr Ser Val Gly Lys	
715 720 725	
gcc ata cac caa gtc ttt gga gga gct ttt aga tca ctc ttt gga ggg	2322
Ala Ile His Gln Val Phe Gly Gly Ala Phe Arg Ser Leu Phe Gly Gly	
730 735 740	

atg tcc tgg atc aca cag gga ctt ctg gga gct ctt ctg ttg tgg atg	2370
Met Ser Trp Ile Thr Gln Gly Leu Leu Gly Ala Leu Leu Leu Trp Met	
745 750 755	
gga atc aat gcc cgt gac agg tca att gct atg acg ttt ctt gcg gtt	2418
Gly Ile Asn Ala Arg Asp Arg Ser Ile Ala Met Thr Phe Leu Ala Val	
760 765 770	
gga gga gtt ttg ctc ttc ctt tcg gtc aac gtc cat gct gac aca ggc	2466
Gly Gly Val Leu Leu Phe Leu Ser Val Asn Val His Ala Asp Thr Gly	
775 780 785 790	
tgt gcc att gat att ggc agg caa gag ctc cgg tgc gga agt gga gtg	2514
Cys Ala Ile Asp Ile Gly Arg Gln Glu Leu Arg Cys Gly Ser Gly Val	
795 800 805	
ttt atc cac aac gat gtg gaa gcc tgg atg gat cgt tac aag ttc tac	2562
Phe Ile His Asn Asp Val Glu Ala Trp Met Asp Arg Tyr Lys Phe Tyr	
810 815 820	
ccg gag acg cca cag ggc cta gca aaa att atc cag aaa gca cat gca	2610
Pro Glu Thr Pro Gln Gly Leu Ala Lys Ile Ile Gln Lys Ala His Ala	
825 830 835	
gaa gga gtc tgc ggc ttg cgt tcc gtt tcc aga ctc gag cac caa atg	2658
Glu Gly Val Cys Gly Leu Arg Ser Val Ser Arg Leu Glu His Gln Met	
840 845 850	
tgg gaa gcc att aag gat gag ctg aac acc ctg ttg aaa gag aat gga	2706
Trp Glu Ala Ile Lys Asp Glu Leu Asn Thr Leu Leu Lys Glu Asn Gly	
855 860 865 870	
gtc gac ttg agt gtc gtg gtg gaa aaa cag aat ggg atg tac aaa gca	2754
Val Asp Leu Ser Val Val Val Glu Lys Gln Asn Gly Met Tyr Lys Ala	
875 880 885	
gca cca aaa cgt ttg gct gcc acc acc gaa aaa ctg gag atg ggt tgg	2802
Ala Pro Lys Arg Leu Ala Ala Thr Thr Glu Lys Leu Glu Met Gly Trp	
890 895 900	
aag gct tgg ggc aag agt atc atc ttt gcg cca gaa cta gct aac aac	2850
Lys Ala Trp Gly Lys Ser Ile Ile Phe Ala Pro Glu Leu Ala Asn Asn	
905 910 915	
acc ttt gtc atc gac ggt cct gag act gag gaa tgc cca acg gcc aac	2898
Thr Phe Val Ile Asp Gly Pro Glu Thr Glu Glu Cys Pro Thr Ala Asn	
920 925 930	
cga gca tgg aac agt atg gag gta gag gac ttt gga ttt gga ctg aca	2946
Arg Ala Trp Asn Ser Met Glu Val Glu Asp Phe Gly Phe Gly Leu Thr	
935 940 945 950	
agc act cgc atg ttc ctg agg att cgg gaa acg aac aca acg gaa tgc	2994
Ser Thr Arg Met Phe Leu Arg Ile Arg Glu Thr Asn Thr Thr Glu Cys	
955 960 965	
gac tcg aag atc ata gga acc gcc gtc aag aac aac atg gct gtg cat	3042



Asp Ser Lys Ile Ile Gly Thr Ala Val Lys Asn Asn Met Ala Val His	
970 975 980	
agt gat cta tca tac tgg ata gag agc gga ctc aac gac acc tgg aag	3090
Ser Asp Leu Ser Tyr Trp Ile Glu Ser Gly Leu Asn Asp Thr Trp Lys	
985 990 995	
ctt gag agg gcg gtt cta gga gaa gtc aaa tca tgc acc tgg cca gaa	3138
Leu Glu Arg Ala Val Leu Gly Glu Val Lys Ser Cys Thr Trp Pro Glu	
1000 1005 1010	
acc cac act ctg tgg ggt gat gga gtt ctg gaa agt gat ctc atc ata	3186
Thr His Thr Leu Trp Gly Asp Gly Val Leu Glu Ser Asp Leu Ile Ile	
1015 1020 1025 1030	
ccc atc acc ttg gca gga ccc aga agc aac cac aac agg aga cca ggg	3234
Pro Ile Thr Leu Ala Gly Pro Arg Ser Asn His Asn Arg Arg Pro Gly	
1035 1040 1045	
tac aaa act cag aac caa ggc cca tgg gat gag ggg cgc gtc gag att	3282
Tyr Lys Thr Gln Asn Gln Gly Pro Trp Asp Glu Gly Arg Val Glu Ile	
1050 1055 1060	
gac ttt gac tat tgc cca gga aca aca gta act ata agt gac agt tgc	3330
Asp Phe Asp Tyr Cys Pro Gly Thr Thr Val Thr Ile Ser Asp Ser Cys	
1065 1070 1075	
gaa cac cgt gga cct gcg gca cgc aca acc act gag agt ggg aag ctc	3378
Glu His Arg Gly Pro Ala Ala Arg Thr Thr Thr Glu Ser Gly Lys Leu	
1080 1085 1090	
atc aca gac tgg tgc tgc aga agt tgc acc ctc cct cca ctg cgc ttc	3426
Ile Thr Asp Trp Cys Cys Arg Ser Cys Thr Leu Pro Pro Leu Arg Phe	
1095 1100 1105 1110	
cag act gag aat ggc tgt tgg tat gga atg gaa att cga cct acg cg	3474
Gln Thr Glu Asn Gly Cys Trp Tyr Gly Met Glu Ile Arg Pro Thr Arg	
1115 1120 1125	
cac gac gaa aag acc ctc gtg caa tcg aga gtg aat gca tac aac gcc	3522
His Asp Glu Lys Thr Leu Val Gln Ser Arg Val Asn Ala Tyr Asn Ala	
1130 1135 1140	
gac atg att gat cct ttt cag ttg ggc ctt atg gtc gtg ttc ttg gcc	3570
Asp Met Ile Asp Pro Phe Gln Leu Gly Leu Met Val Val Phe Leu Ala	
1145 1150 1155	
acc cag gag gtc ctt cgc aag agg tgg acg gcc aag atc agc att cca	3618
Thr Gln Glu Val Leu Arg Lys Arg Trp Thr Ala Lys Ile Ser Ile Pro	
1160 1165 1170	
gct atc atg ctt gca ctc cta gtc cta gtg ttt ggg ggt att acg tac	3666
Ala Ile Met Leu Ala Leu Leu Val Leu Val Phe Gly Gly Ile Thr Tyr	
1175 1180 1185 1190	
act gat gtc ctg cga tat gtc att ctc gtc ggc gcc gcg ttt gct gaa	3714
Thr Asp Val Leu Arg Tyr Val Ile Leu Val Gly Ala Ala Phe Ala Glu	

1195	1200	1205	
gca aac tca gga gga gac gtc gtg cac ttg gca ctt atg gct aca ttc			3762
Ala Asn Ser Gly Gly Asp Val Val His Leu Ala Leu Met Ala Thr Phe			
1210	1215	1220	
aag att caa cca gtc ttt ctg gtg gct tcc ttt ttg aag gca agg tgg			3810
Lys Ile Gln Pro Val Phe Leu Val Ala Ser Phe Leu Lys Ala Arg Trp			
1225	1230	1235	
acc aac caa gag agt att ttg ctc atg ctt gca gct gct ttc ttc caa			3858
Thr Asn Gln Glu Ser Ile Leu Leu Met Leu Ala Ala Ala Phe Phe Gln			
1240	1245	1250	
atg gct tac tat gac gcc aag aat gtt ctg tca tgg gaa gtg cct gac			3906
Met Ala Tyr Tyr Asp Ala Lys Asn Val Leu Ser Trp Glu Val Pro Asp			
1255	1260	1265	1270
gtt ttg aac tct ctc tcc gtt gcg tgg atg att ctc aga gct ata agc			3954
Val Leu Asn Ser Leu Ser Val Ala Trp Met Ile Leu Arg Ala Ile Ser			
1275	1280	1285	
ttc acc aac act tca aat gtg gtg gtg ccg ctg ctg gcc ctt ttg aca			4002
Phe Thr Asn Thr Ser Asn Val Val Val Pro Leu Leu Ala Leu Leu Thr			
1290	1295	1300	
cct gga ttg aaa tgc tta aac ctt gat gtg tac aga att ttg cta ctc			4050
Pro Gly Leu Lys Cys Leu Asn Leu Asp Val Tyr Arg Ile Leu Leu Leu			
1305	1310	1315	
atg gtt gga gtt gga agc ctc atc aaa gaa aaa agg agc tct gca gca			4098
Met Val Gly Val Gly Ser Leu Ile Lys Glu Lys Arg Ser			